Recently a lot of questions have been popping up in various forums along the following lines:

1. (How badly) Do I need an unknown weapon for my dark build? If so, how many should I farm if one suddenly becomes available tomorrow?
2. How many axes and fists should I aim to have in my grid if I don't have summer Zooey?
3. I have summer Zooey/plans to spark her later this year, how many axes and fists should I aim to have in my grid before I reach the damage cap?
4. Should I spend my next Surprise Ticket and Damascus ingots on Gisla?

People have been pretty diligent with their explanations but I felt it might be better to post an analysis so a lot of effort could be saved, especially consider Darchrow never updated his old dark weapons guide. The answers here are by no means comprehensive and in order to avoid another "Complete Dark Guide" fiasco, I declare the following topics beyond the scope of this guide:

- Hades builds – *I am happy to answer questions on this one if you have any*
- Cortana builds – *Same as above, too complex and character dependent for this piece*
- Memeing with Korwa – *Try it, it is well worth it but she gets in the way of a good story*
- Existential crises involving Summer Zooey – *We have gone through this one already*
- Tier 2 Zenith perks available at rank 150 and higher

These topics might be explored in a future update, but I doubt if it will ever be necessary because by then everyone should be able to decide for themselves. Many intermediate combinations (e.g. 3 normal, 1 unknown, 6 magna) have also been omitted to keep this guide short and on point.

All weapons and summons are assumed to be MLB and fully levelled unless specified otherwise, all calculations assume weaponless ATK of 15000 and elemental advantage. As per usual, a spreadsheet containing the calculations will be available for download for your own investigations.

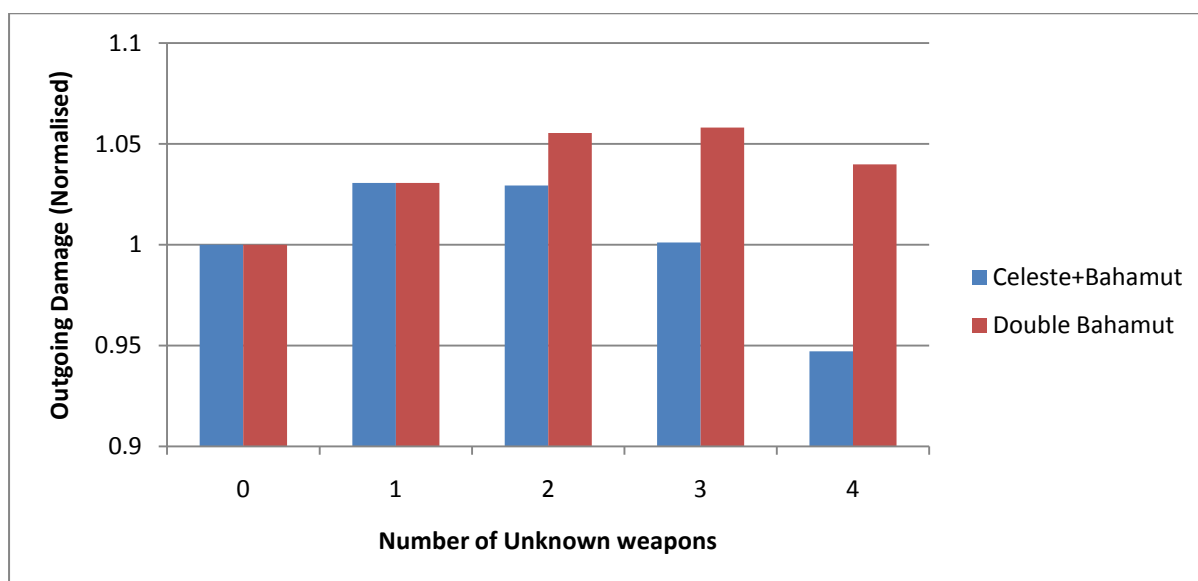**Topic 1: The role of unknown weapons in an endgame dark grid**

Fig.1. Effects of adding unknown weapons to a previously optimal magna grid using different summon combinations. Weapon grid was set up initially with 2 normal weapons, 1 Bahamut weapon (30%) and 7 Celeste axes; ToA Katanas were added one by one to replace the weakest weapon in the existing grid.

Celeste builds benefit the most from having one unknown weapon (~3% higher ATK overall); including two unknowns is viable but only marginally better than one; three is already too many.

In contrast, Double Bahamut builds continue to improve with a 3rd katana but the gains are greatly diminished and a 4th unknown results in a small loss of ATK. This will change when dark gets a 4* unknown weapon, however given the circumstances it is extremely unlikely to happen in 2017.

All in all, there is no reason to neglect dark because there hasn't been an unknown weapon available for any events for a while. They are, however, great during one's progression since they are viable substitutes of a few magna weapons until the latter could be fully levelled and are probably easier to farm given the opportunity. The same holds true for every other element except fire.

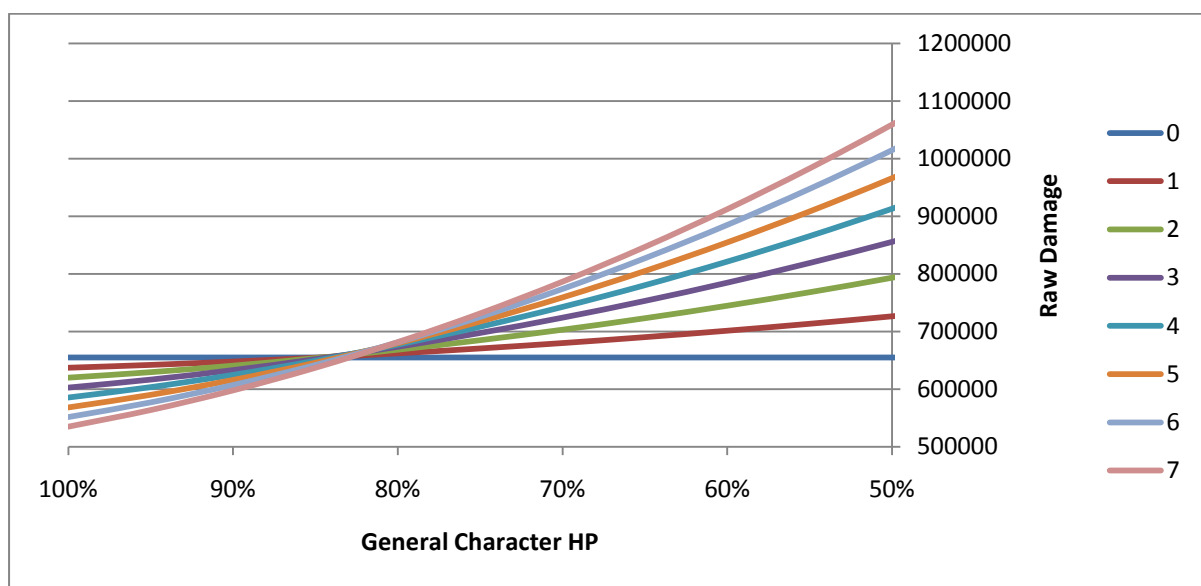**Part 2: Weighting Enmity in a Celeste+Bahamut Grid**

Fig.2. Raw Damage versus number of fists from 100% to 50% HP in an unknown-free 3:7 grid
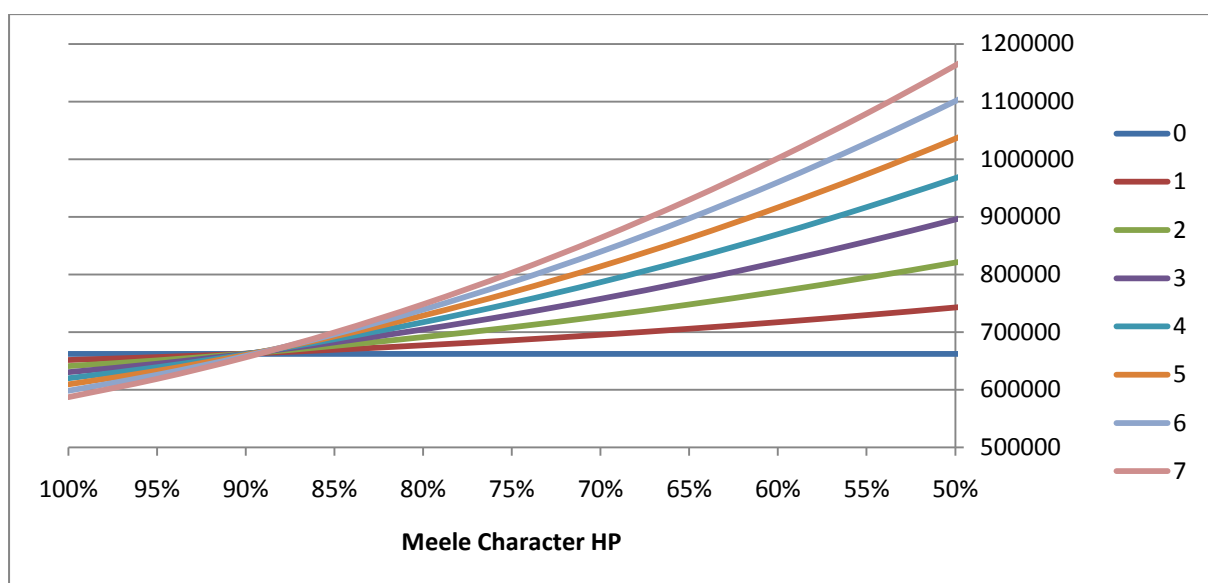

Fig.3. Raw damage changes for fist-proficient characters such as Six/Seox using the same setup of Fig.2

The effect of replacing axes with fists is fairly linear for the first few fists, with each lowering DPH at full HP by approximately 2.5% and increasing damage by 10% at half HP over the baseline. From the 5th fist the gains are still tangible albeit less prominent.

At a glance, 2-3 fists appear to strike good balance between ATK and enmity. Trading 5-8% of DPH at full HP for 20-30% more at half HP is well worth the cost. However if your main source of DPS is MC Luchador and/or Six, it might be advisable to run as many fists as possible because the gap between each axe and fist at full HP is a lot smaller (~1.5%) and the breakeven point is closer (~90% HP), not to mention gains towards lower HP are much more significant.

Part 3 Optimising Enmity against the Damage Cap

Extending Figure 2 to include the full HP range and converting raw damage to real values using the most optimistic scenario (enemy DEF=5, explained later) yields the following graph:
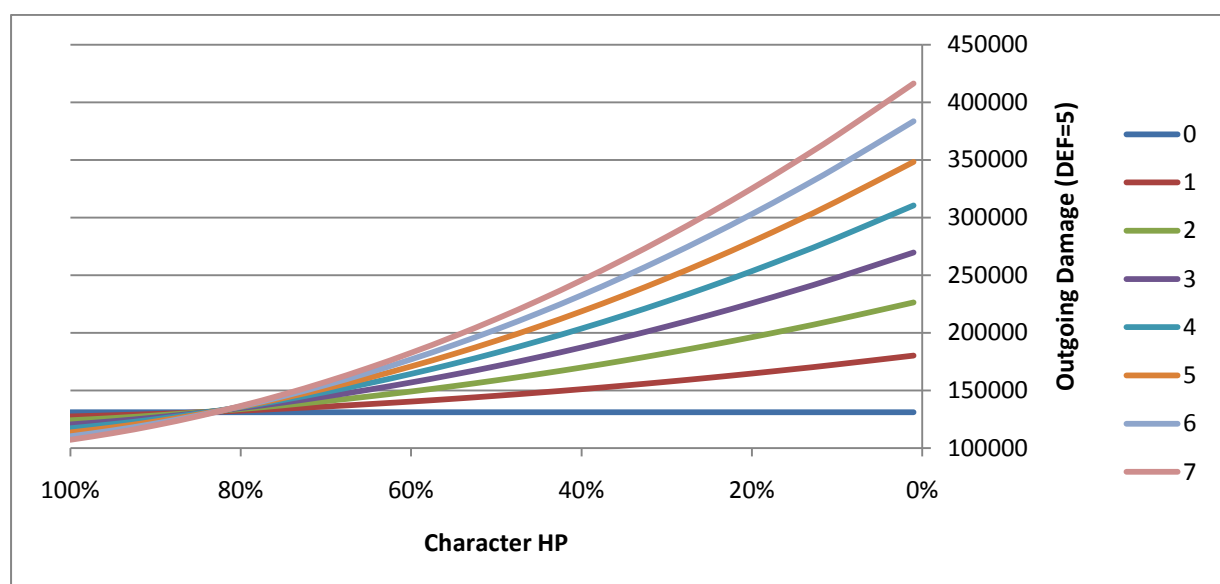

Fig.4. Raw Damage versus number of fists from 100% to 1% HP in an unknown-free 3:7 grid

As we all know, auto-attack damage is capped at approximately 440,000[1] and it may look like none of the combinations appears to break the barrier. This is not the full story:

- Individual characters are more likely to be fighting with some bonus damage than without. For example, the MC is always doing 25% more damage than other character due to job mastery and Zenith bonuses and Djeanne has her own enmity multiplier (45% at 1 HP); With 4 or more fists one is expected to encounter the damage cap regularly.

- On the other hand, many enemies, especially those found in more recent contents, have a DEF value higher than 10 (5 when fully debuffed). For example, Luminiera HL starts off at 15 DEF; effective damage against her is reduced by a third since the fully debuffed still has 50% higher DEF than usual (1/5 vs. 1/7.5).

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[1] This is a very close estimation and less accurate when the outgoing damage is between 400K and 440K, however it should not change the conclusions being drawn here. I will update the relevant information once a more accurate algorithm is available

The following team is put together to better explain the concepts as each character has a significant amount of individual ATK multipliers[2]:

1. MC Luchador[3] with full class mastery bonus, 3* Zenith ATK perks, full stacks of ATK+ and Hype from *Spirit of Training* and *Ring Ruler* (118% * 106% * 150% * 200% = 375%)
2. Seox with full stacks ATK+ from *Gate of Sin* and *Gate of Demons* (160% * 355% = 568%)
3. Narmaya with active *Butterfly Effect* and full stack of ATK+ (150%, +70% echo)
4. Forte with passive skill *We Are Blackwyrm* maxed out (150%)

And we need to devise several different scenarios to reflect different contexts:

A. **DEF=5: Fully-debuffed low-defence enemies (10 * 50% = 5)**
   Examples include VH and EX Magnas, Co-Op and older events including Celestial EX+ bosses
B. **DEF=7.5: Fully-debuffed high-defence enemies**
   This includes most HL raids except Baha HL and possibly recent 6-pax HL and events.
C. **DEF=10: Low-defence enemies or fully-debuffed very-high-defence enemies**
   Baha HL, or when you decide to fight your EX Magnas without mist.
D. **DEF=20: Very-high-defence enemies**
   This happens when Kirari finds your raid.

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[2] Weapon proficiency and Narmaya's passive are not considered since they scale differently depending on the weapon grid, and thus are less meaningful in a comparsion
[3] Wrong skin, should be obvious

The weapon grid used here is made of 2 normal weapons, 1 32% Baha weapon, 1 Celeste axe and 6 Celeste Fists as shown above.
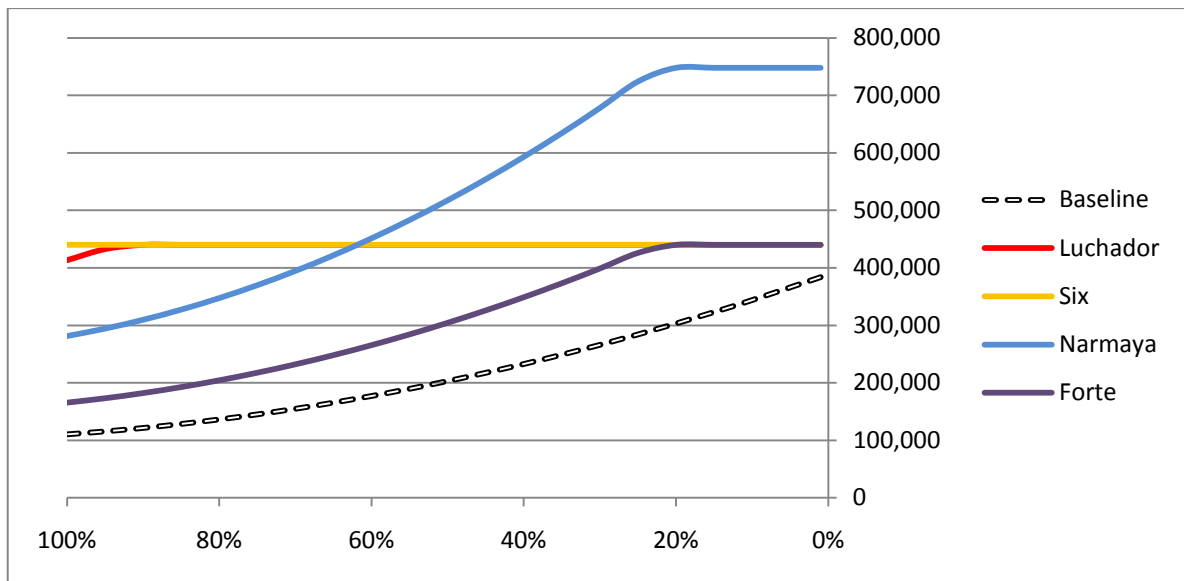

Fig.5. Outgoing damage vs. HP, DEF=5.

Seox is capable of hitting the cap throughout the HP range and MC Luchador is a close second. Forte's auto-attack maxes out at 440K whereas Narmaya does much, much better and managed to scale up to 748K thanks to her 70% echo. While the cap is reached fairly soon, <u>in very short battles there is often not enough time to build up character multipliers and the baseline value is still not saturated even with six fists.</u>
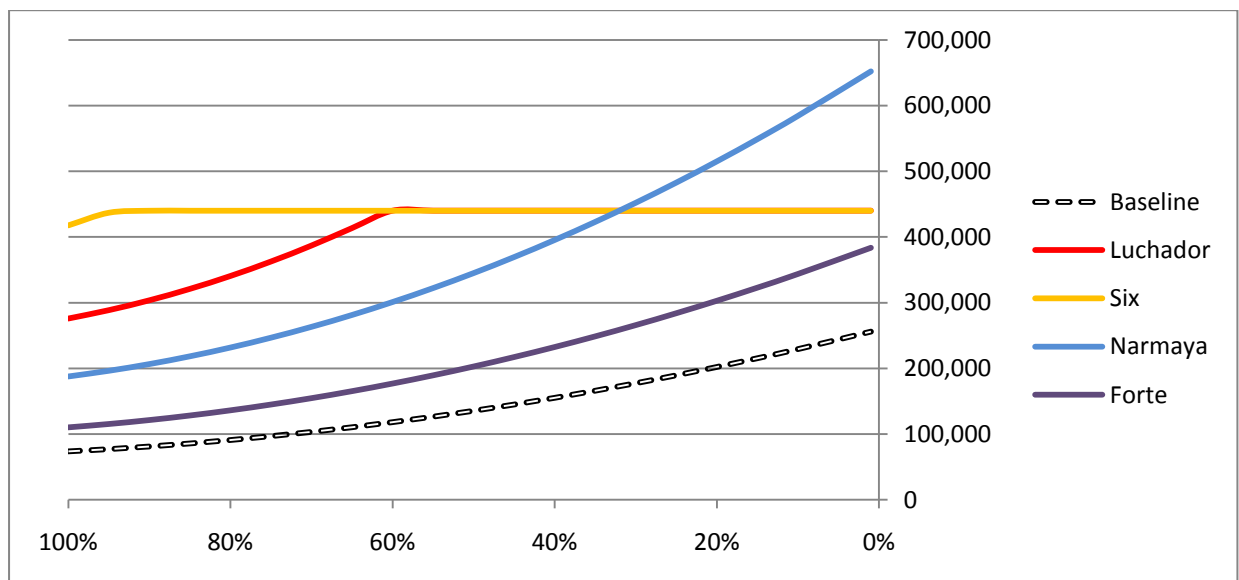

Fig.6. Outgoing damage vs. HP, DEF=7.5

Again, Seox is able to saturate the cap with minimal amount of enmity whereas MC Luchador has to be at or below 60% HP to catch up. Narmaya and Forte's DPH falls just short of the cap even at 1 HP, suggesting there is still room for improvement.
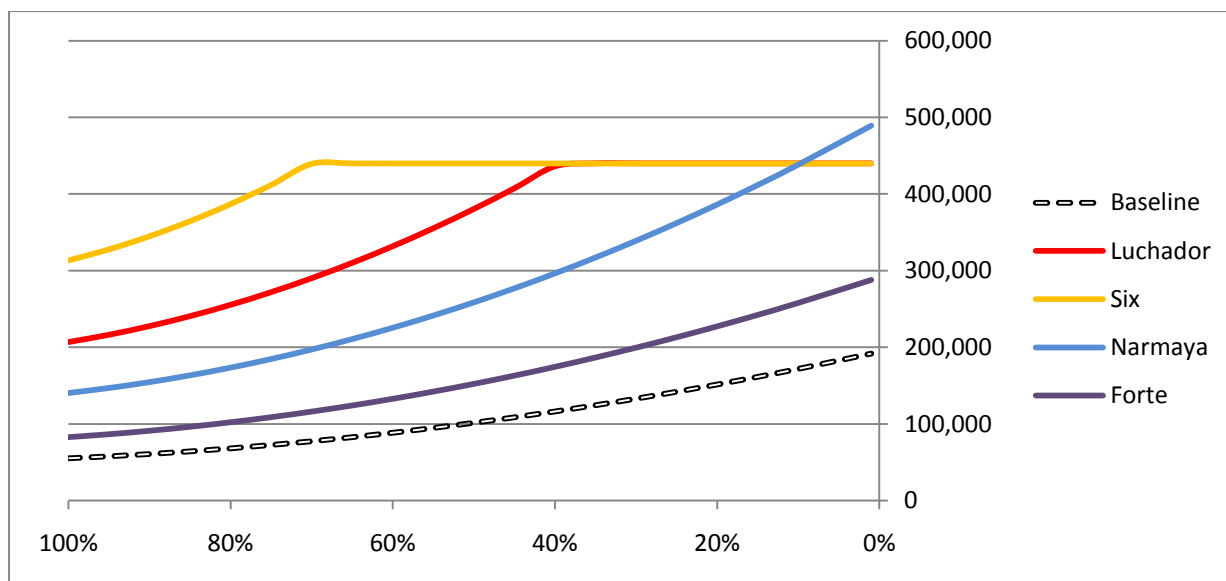
Fig.7. Outgoing damage vs. HP, DEF=10

The trend continues with MC and Six seeing the cap at much lower HP percentages. Narmaya still outperforms both at very low HP while Forte falls further behind.
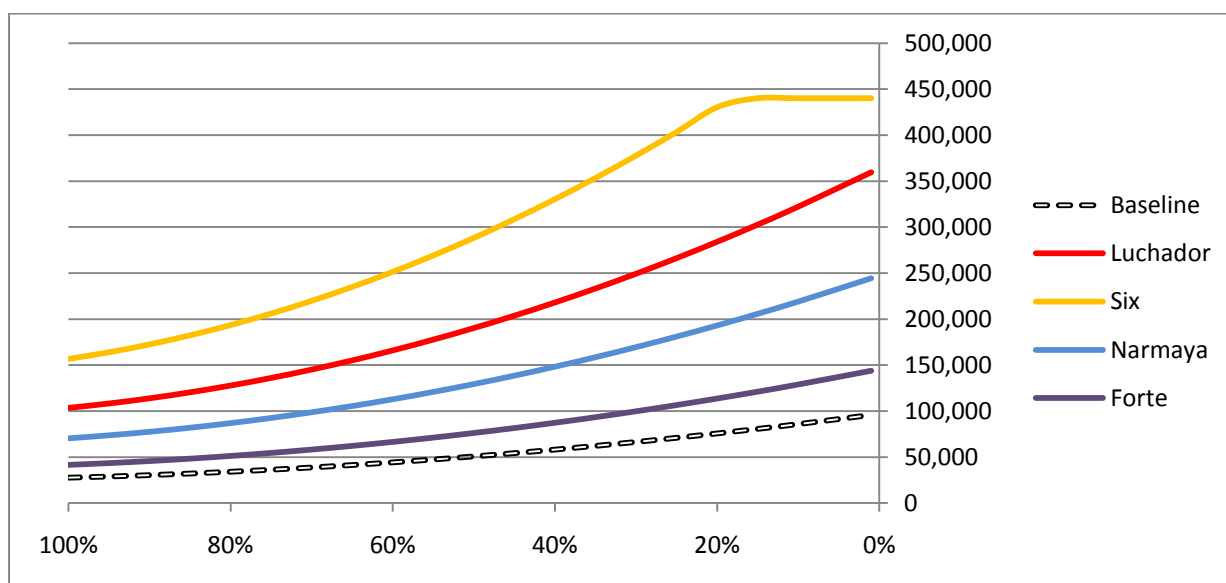

Fig.8. Outgoing damage vs. HP, DEF=20

In the very worst case, Six is still capable of hitting the cap under ideal conditions but none of the other characters could. MC and Narmaya held their own reasonably well but Forte may better be substituted with a support character capable of drawing aggro away from three attackers threading on eggshells. Perhaps this is when dodge-based characters like Veight and Anthuria truly shines, but I digress.

Part 4: The Allure of Gisla-nee

Suppose we have the same 3+7 grid (1 axe and 6 fists) as before and plan to improve it further by replacing the weakest normal weapon. Candidates for comparison include:

- Elechanged GW axe, interchangeable with any 3* gacha weapon with large ATK skill (15%)
- Bahamut Sword Coda with an effective ATK modifier of 18% due to 50% cap, if you have a 4* dark gacha weapon with large ATK skill it will be the same without race restrictions.
- 4* Gisla with ATKII (20%) and medium enmity (10%)
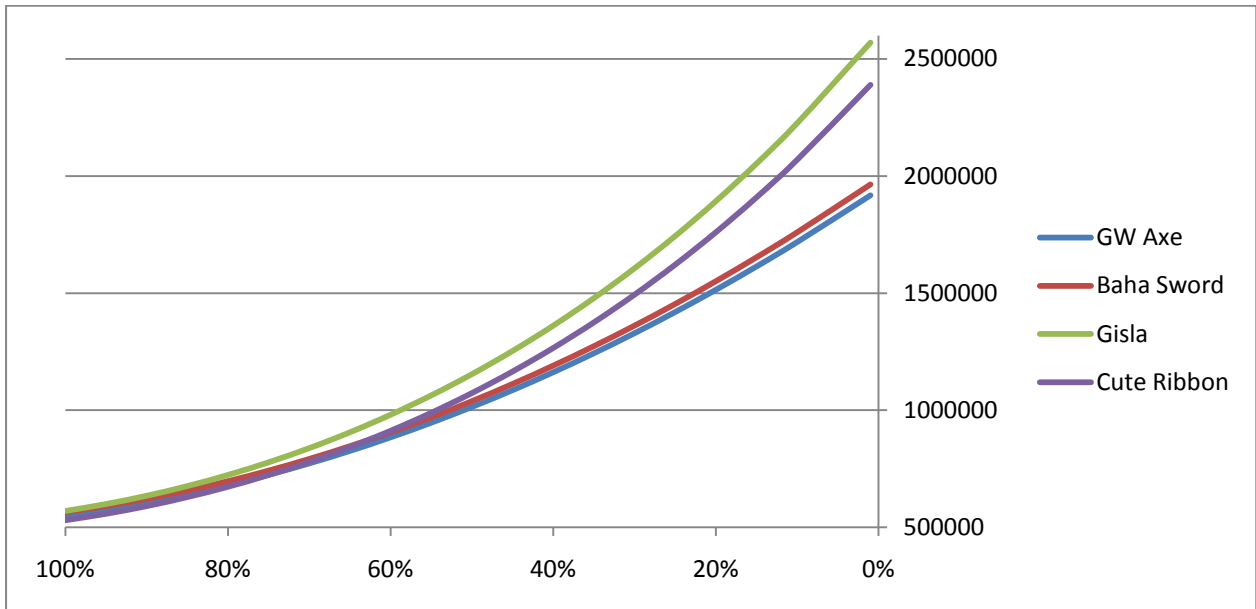- 3* Cute Ribbon because the first one is free with Summer Zooey

Fig.9. Comparative raw damage vs. HP using different normal weapons in a 3:7 grid

At full HP, the improvement from using a 15%, 18% or 20% ATK normal weapons are very subtle and Gisla does not stand out until late (~12% at 50% HP, 30% at 1% HP). Cute Ribbon could be interpreted as a mini-Gisla albeit a fairly situational one: Its large enmity skill provides the same amount of enmity yet the ATK modifier is only half of the former. Hence it starts off worse than all else and only catches up by 60% HP. Nevertheless, at lower HP it is only outclassed by a real Gisla.
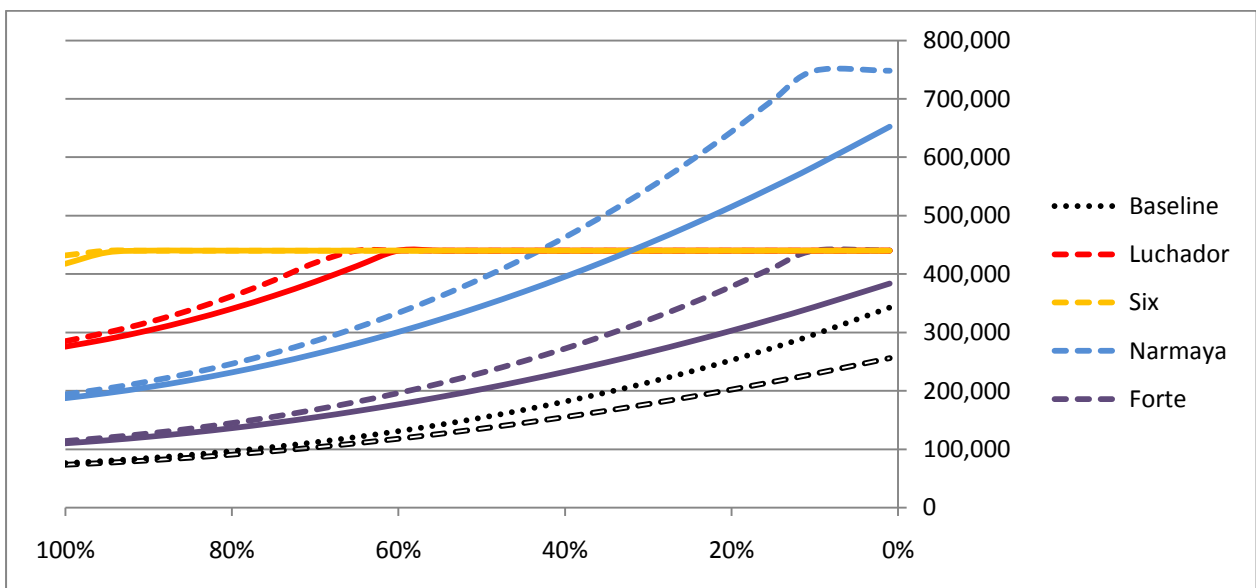

Fig.10. Outgoing DPH versus HP (DEF=7.5) with one Gisla (dashed line) and without (solid line). The improvement is more pronounced towards higher enmity whereas at full HP it is marginal at best.

Everyone who's been playing since late 2016 should be in position to obtain Gisla and MLB it with Damascus ingots when the next surprise ticket comes (hopefully by the 3rd anniversary in March). Whether one should ticket a weapon over characters or summons will depend on their own goals and perspective. However it must be stressed that the fundamental purpose of Gisla in a Celeste grid is not to raise the damage ceiling (there are better alternatives for this), but to create some headroom so one or two fists could be taken out without sacrificing too much enmity.

In any case, Gisla is of pretty limited use to those still working on their weapon grid or waiting to spark Summer Zooey. Notwithstanding that, players who have completed their F2P dark build probably want one as their final upgrade and $30 is not an outrageous price either. Having a second copy of Gisla is viable but arguably not worth the cost considering that it will compete with Ancient Cortana for available weapon slots, unless a transition to Hades build is imminent.

Thanks for reading!

Image Source: https://twitter.com/haruomiya/status/809038828803497985